

# इंटरनेट

# मानक

## Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 8786 (1978): Okra (Bhindi) Canned in Tomato Sauce [FAD  
10: Processed Fruits and Vegetable Products]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



BLANK PAGE



*Indian Standard*

SPECIFICATION FOR  
OKRA (*BHINDI*) CANNED IN TOMATO SAUCE

UDC 664.843.036.5 : 635.648



© Copyright 1978

INDIAN STANDARDS INSTITUTION  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

# Indian Standard

## SPECIFICATION FOR OKRA ( *BHINDI* ) CANNED IN TOMATO SAUCE

Fruits and Vegetables Sectional Committee, AFDC 23

### Chairman

DR P. K. KYMAL

### Representing

Food & Nutrition Board ( Department of Food,  
Ministry of Agriculture & Irrigation ),  
New Delhi

### Members

AGRICULTURAL MARKETING  
ADVISER TO THE GOVERNMENT  
OF INDIA

SHRI KARTAR SINGH ARORA

Directorate of Marketing & Inspection ( Ministry  
of Agriculture & Irrigation ), Faridabad

Department of Agriculture, Government of  
Haryana

SHRI NARAIN DASS DUDEJA ( *Alternate* )

SHRI S. R. BAJAJ

SHRI D. S. CHADHA

Bajaj Consultants, New Delhi

Central Committee for Food Standards ( Ministry  
of Health & Family Welfare ), New Delhi

Technical Standardization Committee ( Food-  
stuffs ) ( Ministry of Agriculture &  
Irrigation ), New Delhi

CHAIRMAN

SECRETARY ( *Alternate* )

SHRI B. P. CHAKLADAR

Department of Agriculture, Government of West  
Bengal

SHRI CHARANJIT SINGH

All India Cold Storages Association, New Delhi

SHRI S. K. MITTAL ( *Alternate* )

SHRI P. P. CHAUHAN

Export Promotion Cell, Ministry of Agriculture  
& Irrigation, New Delhi

Indian Agricultural Research Institute ( ICAR ),  
New Delhi

DR B. CHOUDHURY

DR J. C. ANAND ( *Alternate* )

SHRI DAYA NAND

Central Fruit Products Advisory Committee  
( Ministry of Agriculture & Irrigation ), New  
Delhi

DEPUTY DIRECTOR OF AGRICUL-  
TURE ( MARKETING )

Department of Agriculture, Government of Tamil  
Nadu

HORTICULTURIST ( *Alternate* )

SHRI S. D. DEWAN

Ministry of Agriculture & Irrigation ( Depart-  
ment of Agriculture )

( Continued on page 2 )

© Copyright 1978

INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act* ( XIV of 1957 ) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

( Continued from page 1 )

<i>Members</i>	<i>Representing</i>
SHRI O. P. DHAMIJA	Export Inspection Council ( Ministry of Commerce, Civil Supplies and Cooperation ), Calcutta
SHRI S. L. KATYAL	Indian Council of Agricultural Research, New Delhi
PROF RANJIT SINGH ( <i>Alternate</i> )	
SHRI B. C. MATHUR	National Cooperative Development Corporation, New Delhi
DR R. L. NAGPAL	Department of Agriculture, Government of Maharashtra
DEPUTY DIRECTOR OF AGRICULTURE ( HORTICULTURE ) ( <i>Alternate</i> )	
DR A. G. NAIK-KURADE	All India Food Preservers' Association, New Delhi
SHRI M. S. KOHLI ( <i>Alternate</i> )	
SHRI K. R. NARASIMHAN	The Metal Box Co of India Ltd, Calcutta
DR S. C. CHAKRAVARTY ( <i>Alternate</i> )	
SHRI S. M. NEMBHANI	Indian Institute of Packaging, Bombay
SHRIMATI DORDI ( <i>Alternate</i> )	
DR M. V. PATWARDHAN	Central Food Technological Research Institute ( CSIR ), Mysore
SHRI V. B. DALAL ( <i>Alternate</i> )	
SHRI S. RAMASWAMY	Development Council for Food Processing Industries ( Directorate General of Technical Development ), New Delhi
DR K. S. RANDHAWA	Punjab Agricultural University, Ludhiana
DR G. S. NIJJAR ( <i>Alternate</i> )	
DR T. R. SHARMA	Defence Food Research Laboratory ( Ministry of Defence ), Mysore
SHRI L. A. RAMANATHAN ( <i>Alternate</i> )	
SHRI P. S. SRINIVASAN	Processed Foods Export Promotion Council, New Delhi; and Ministry of Commerce, Civil Supplies and Cooperation
SHRI B. K. IYANGAR ( <i>Alternate</i> )	
COL R. N. TANEJA	Directorate of Supplies & Transport, Army Headquarters
LT-COL D. D. VOHRA ( <i>Alternate</i> )	
DR S. S. TEAOTIA	Directorate of Fruit Utilization, Government of Uttar Pradesh, Lucknow
DR S. K. BOSE ( <i>Alternate</i> )	
SHRI T. PURNANANDAM,	Director General, ISI ( <i>Ex-officio Member</i> )
Deputy Director ( Agri & Food )	

*Secretary*

SHRI V. S. MATHUR  
Deputy Director ( Agri & Food ), ISI

( Continued on page 19 )

# *Indian Standard*

## SPECIFICATION FOR OKRA (*BHINDI*) CANNED IN TOMATO SAUCE

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 28 April 1978, after the draft finalized by the Fruits and Vegetables Sectional Committee had been approved by the Agricultural and Food Products Division Council.

**0.2** There is considerable amount of trade of canned okra in tomato sauce developing within the country, and there is a good potential for export. It is, however, necessary to ensure the quality of the product, if the demand is to be maintained and further developed. It was, therefore, found necessary to formulate an Indian Standard Specification for this product.

**0.3** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

---

### 1. SCOPE

**1.1** This standard prescribes requirements for okra (*BHINDI*) [*Abelmoschus esculentus* (L.) Moench] canned in tomato sauce.

### 2. TERMINOLOGY

**2.0** For the purpose of this standard, the following definitions shall apply.

**2.1 Absence of Defects** — The degree of freedom from extraneous material, such as butt ends of okra, and also freedom from damage due to mechanical injury. Blemished and disintegrated units present shall be within the limits specified.

**2.2 Blemished Units** — Units that are blemished with some injury, such as wormhole, insect damage and physiological disorder, or other abnormality, such as sun burn, scale and enzyme activity on the surface, readily

---

\*Rules for rounding off numerical values (*revised*).

visible to the naked eye to a noticeable degree. A unit shall be considered blemished when the aggregate blemished area exceeds the area of a circle of 3.2 mm diameter. Uneven distribution of pigments and change in colour normally associated with proper processing shall not be considered as defects.

**2.3 Disintegrated Units** — Units that have lost the normal shape or form or from which some portions have been separated.

### **3. STYLES**

**3.1** Okra used for canning shall be in any of the following forms:

- a) Whole pieces unscrapped with butts trimmed; and
- b) Smaller pieces obtained from whole pieces, cut transversely with butts removed.

### **4. GRADES**

**4.1** Canned okra shall be of 2 grades, namely, Grade 1 and Grade 2.

### **5. REQUIREMENTS**

**5.1 Hygienic Requirements** — The material shall be prepared and handled under strict hygienic conditions by persons free from contagious and infectious diseases and only in premises maintained in a thoroughly clean and hygienic condition and having adequate and safe water supply. All workers shall use clean, white, washed clothing ( *see* IS : 6542-1972\* ). Necessary precautions shall be taken to prevent incidental contamination of the product from soiled equipment or from personnel suffering from injuries.

**5.1.1** All equipment coming in contact with raw materials or products in the course of manufacture shall be kept clean. An ample supply of steam and water, and hose, brushes and other equipment necessary for proper cleaning of machinery and equipment shall be available. The equipment may be sterilized by immersion in or swabbing with hypochlorite, or other suitable chlorine solution having at least 50 mg/kg available chlorine.

**5.2 General** — The okra selected for canning shall be at proper stage of maturity and shall have the characteristic colour, flavour and texture. It shall be free from blemishes and damage by insect or disease, and shall be of the same variety.

**5.3 Freedom from Preservatives, Artificial Colouring Matters and Flavouring Agents** — The material shall be free from preservatives, artificial colouring matters and flavouring agents.

---

\*Code for hygienic conditions for fruit and vegetable canning units.



**5.4 Requirements for Covering Tomato Sauce** — The sauce shall be prepared from fresh, red tomatoes of the right variety. The tomatoes shall be free from any disease, insect damage, mould growth, rot, etc. The substances that may be added are salt (*see* Table 1), citric acid, sugar, spices and vinegar or acetic acid. The final Brix of the sauce shall not exceed 90 and acidity shall not exceed 1 percent as citric acid.

**5.5 Requirements for the Finished Product** — The contents of the can on opening shall display the following characteristics:

*Grade 1* — Both the vegetable and the tomato sauce shall possess a good, characteristic and practically uniform colour. The material shall be practically uniform in size and practically free from defects and disintegration, and shall possess a characteristic good texture and flavour. It shall be of such quality as to score not less than 85 points.

*Grade 2* — Both the vegetable and the tomato sauce shall possess a good, characteristic and practically uniform colour. The material shall be reasonably uniform in size and reasonably free from defects, and shall possess characteristic, reasonably good texture and flavour. It shall be of such quality as to score not less than 75 points.

The maximum and the minimum number of points to be scored by different factors shall be as given below:

	<i>Maximum</i>	<i>Minimum</i>	
		Grade 1	Grade 2
Colour	15	12	10
Texture and uniformity of size	35	26	22
Taste and flavour	15	12	10
Absence of defects	35	26	23

Scoring shall be done according to the method prescribed in Appendix A.

#### 5.5.1 Colour

*Grade 1* — The units shall possess a good, practically uniform colour, characteristic of okra of the proper maturity, practically free from any bluish-black discolouration either partly or wholly. Uneven distribution of pigments and change in colour normally associated with proper processing shall not be considered as defects. The colour of the sauce shall be practically red.

*Grade 2* — The units shall possess a good, reasonably uniform colour, characteristic of okra at the right stage of maturity, reasonably

free from any bluish black or black discolouration either partly or wholly. Uneven distribution of pigments and change in colour normally associated with proper processing shall not be considered as defects. The colour of the sauce shall be reasonably red.

#### **5.5.2 *Texture and Uniformity of Size***

*Grade 1* — The units shall possess a practically good texture, which means that the units shall be just firm but not soft or woody and tough. The units shall be practically uniform in size.

*Grade 2* — The units shall possess a reasonably good texture, which means that the units shall be reasonably firm, may be soft but not woody and tough. The units shall be reasonably uniform in size.

#### **5.5.3 *Taste and Flavour***

*Grade 1* — The units shall possess the characteristic taste of tender but not fibrous or tough okra. The units shall be completely devoid of any objectionable or off taste, or objectionable smell and odour.

*Grade 2* — The units shall possess the characteristic taste of tender okra. The units shall be reasonably devoid of any objectionable or off taste, or objectionable smell and odour.

#### **5.5.4 *Absence of Defects***

*Grade 1* — The units shall be practically free from defects, which means that no extraneous material like the butt ends, not more than 5 percent of blemished units and not more than 5 percent of disintegrated units, calculated on the drained mass basis, shall be present. The covering sauce shall be practically homogeneous, practically free flowing and practically free from detached okra seeds and shall have bright red colour. The detached seeds shall not be more than 0.5 percent calculated on the drained mass basis.

*Grade 2* — The units shall be reasonably free from defects, which means that no extraneous material like the butt ends, not more than 10 percent of blemished units and not more than 10 percent of disintegrated units, calculated on the drained mass basis, shall be present. The covering sauce shall be reasonably free from detached okra seeds and shall have dull red colour. The detached seeds shall not be more than 0.5 percent calculated on the drained mass basis.

**5.5.5** The material shall also conform to the requirements prescribed in Table 1.

**TABLE 1 REQUIREMENTS FOR OKRA ( BHINDI ) CANNED  
IN TOMATO SAUCE**( *Clauses 5.4, 5.5.5 and 8.1* )

Sl No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO	
			Appendix	Cl No. of IS : 2860-1964*
(1)	(2)	(3)	(4)	(5)
i)	Drained mass of the contents of the can, as percentage of the net mass, <i>Min</i>	55	B	—
ii)	Salt, percent by mass, <i>Max</i>	2	C	—
iii)	Vacuum in the can, mm, <i>Min</i>	150	—	5
iv)	Arsenic, mg/kg, <i>Max</i>	1.0	—	13
v)	Lead, mg/kg, <i>Max</i>	2.5	—	14
vi)	Copper, mg/kg, <i>Max</i>	5.0	—	15
vii)	Zinc, mg/kg, <i>Max</i>	5.0	—	16
viii)	Tin, mg/kg, <i>Max</i>	250	—	17
ix)	Microbiological requirements	To satisfy the requirements of the test	—	18

\*Methods of sampling and test for processed fruits and vegetables.

## 6. PACKING AND MARKING

### 6.1 Packing

**6.1.1** The material shall be packed in cans made of electrolytic tinplate. The cans shall be plain or lacquered and hermetically sealed. The side seam shall be lacquered. The can exterior shall be free from dents, rust, perforations and seam distortions. The cans shall not show leaking, paneling or swell. The interior of the plain cans may show visible black discolourations. Normal feathering shall not be considered as a defect.

**6.1.2** The cans shall be filled with the material, without impairment of quality. The size of the cans and the net mass of their contents shall ordinarily be as given in Table 2. For determining the capacity and dimensions, method given in IS: 6093-1971\* shall be followed.

In case, containers other than those specified in Table 2 are used, the size of the containers and the net mass of their contents shall be as agreed to between the purchaser and the vendor.

\*Method of determining the capacity and dimensions of hermetically sealed metal food containers.

TABLE 2 SIZES AND CAPACITIES OF CANS

( Clause 6.1.2 )

SL No.	CONTAINER ( TRADE NAME )	TRADE SIZE	NOMINAL DIAMETER	NOMINAL HEIGHT	NET MASS OF CONTENTS
(1)	(2)	(3)	(4)	(5)	(6)
		mm	mm	mm	g
i)	No. 1 tall	301 × 409	77.8	115.9	400
ii)	A-2½	401 × 411	103.2	119.1	800

**6.1.3 Packing in Cases** — The cans shall be packed in wooden packing cases ( *see* IS : 1503-1967\* ) or corrugated board boxes or any other type of cases.

## 6.2 Marking

**6.2.1** Each can shall be marked with the following particulars:

- Name, style and grade of the material, with the brand name, if any;
- Name and address of the manufacturer;
- Net mass of the contents of the can in grams;
- Date of manufacture, or code number indicating the date of manufacture;
- Manufacturer's licence number; and
- Any other marking required under Packaged Commodities Regulations, 1955.

**6.2.2** Each packing case shall be marked with the following information:

- Name of the product;
- Gross mass;
- Name and address of the manufacturer;
- Number of cans × mass of each can;
- Date of manufacture, or code number indicating the date of manufacture; and
- Manufacturer's licence number.

\*Specification for wooden packing cases ( *first revision* ).

### 6.2.3 The containers may also be marked with ISI Certification Mark.

**NOTE**— The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

## 7. SAMPLING

**7.1** Representative samples of the material shall be drawn and tested for conformity to this standard by the method prescribed in 3 of IS : 2860-1964\*.

## 8. TESTS

**8.1** The samples of okra canned in tomato sauce shall be tested for ascertaining conformity of the material to the requirements of this specification by the methods prescribed in Appendices A, B and C and in the relevant clauses of IS : 2860-1964\*, as given in col 4 and 5 of Table 1.

## APPENDIX A

(Clauses 5.5 and 8.1)

### DETERMINATION OF GRADE OF THE PRODUCT

#### A-1. APPARATUS

**A-1.1 White Porcelain Bowls** — big enough to hold the contents of the can under examination.

**A-1.2 Stainless Steel Spoons** — table spoons (see IS : 990-1964†).

#### A-2. PROCEDURE

**A-2.1 Panel of Judges** — Judging for grading the product shall be done by a panel of three to five judges. All the judges constituting a panel shall be conversant with the factors governing the quality of the product. The cans shall be opened and the contents poured separately into white porcelain bowls. Each judge shall independently examine the contents from each of the cans and assign scores for different characteristics.

**A-2.1.1** The judges shall consider the following characteristics:

Colour, texture and uniformity of size, taste and flavour, and absence of defects.

---

\*Methods of sampling and test for processed fruits and vegetables.

†Specification for spoons, stainless steel (*first revision*).

**A-2.2 System of Scoring** — The variations within each factor are so described that the score may be ascertained for each factor and expressed numerically. The relative importance of each factor has been expressed numerically on a scale of 100. Each judge shall give a score for the individual factors, by the method described in Table 3 and record his observations in the score sheet (see page 13).

The scores as number of points given on the score sheet by the judges for the contents of each can for the four factors shall be recorded in a tabular form in the score card (see page 15) and the average score calculated for each factor with the overall average for each can entered in the appropriate columns of the score card after complying with the conditions specified in **A-2.3.1** and **A-2.3.2**.

### **A-2.3 Ascertaining the Grade**

**A-2.3.1 Agreement Among Judges** — To ascertain the consistency of judgment among the judges, the total score assigned by each of them for the contents of the same can shall be calculated by adding up the scores for the various individual characteristics. If the difference between the maximum and the minimum of the total score so obtained does not exceed  $K + 5$ , where  $K$  is the number of judges, the scoring shall be deemed as consistent for the can under consideration. If the difference exceeds  $K + 5$ , the most outlying score, that is, the one which is farthest from its immediate neighbour (the scores being arranged in one order), shall be discarded and the consistency among the remaining judges shall be examined.

**A-2.3.2** When the consistency is thus established (**A-2.3.1**), the overall average scores given by the judges, whose scoring has been found to be consistent, shall be calculated for each can. The average score for each of the individual characteristics shall also be calculated by taking into account the corresponding scores as given by the same judges for the contents of the same can.

**A-2.3.3 Assignment of Grade** — In order to assign a grade for the contents of a can, the following procedure shall be adopted:

*Grade 1* — The score for each factor individually (**A-2.3.2**) shall be not less than 75 percent of the maximum score obtainable, and the overall average score shall be not less than 85 points.

*Grade 2* — The score for each factor individually (**A-2.3.2**) shall be not less than 65 percent of the maximum score obtainable, and the overall average score shall be not less than 75 points.

**TABLE 3 METHOD FOR GIVING SCORES FOR OKRA ( BHINDI )  
CANNED IN TOMATO SAUCE**

( Clause A-2.2 )

SL No.	ORGANO- LEPTIC CHARAC- TERISTIC	REQUIREMENT	MAXIMUM NUMBER OF POINTS	PROPERTIES WHICH REDUCE THE VALUE	VALUE REDUCED UP TO, POINTS
(1)	(2)	(3)	(4)	(5)	(6)
i)	Colour	Good, green, uniform characteristic of the variety and proper maturity, free from any bluish-black or black discolouration (uneven distribution of pigments and change in colour normally associated with proper processing shall not be considered as defects); sauce red in colour	15	a) Not quite uniform, slightly varying shades of the characteristic colour, very slight discolouration; sauce light red in colour b) Non-uniform, some units having yellowish green colour, some discolouration; sauce yellowish red in colour c) Dull, non-uniform, black discolouration; sauce yellowish green in colour	12  10  0
ii)	*Texture and uniformity of size	Good texture, just firm but not soft or woody and tough; uniform size	35	a) Texture not very good, some units slightly hard; almost uniform size b) Units rather hard, some woody or tough; size varying within reasonable limits c) Woody tough texture; size not at all uniform	26  22  0
iii)	Taste and flavour	Pleasant flavour, taste characteristic of tender okra; free from any objectionable or off taste, objectionable smell or odour; free from sourness, staleness or metallic taste	15	a) Slight variation in the normal taste, some units over-mature b) Taste indicating that the units are over-mature, slight smell of sourness or sulphide odour	12  10

( Continued )

**TABLE 3 METHOD FOR GIVING SCORES FOR OKRA ( BHINDI )  
CANNED IN TOMATO SAUCE — *Contd***

SL No.	ORGANO- LEPTIC CHARAC- TERISTIC	REQUIREMENT	MAXIMUM NUMBER OF POINTS	PROPERTIES WHICH REDUCE THE VALUE	VALUE REDUCED UP TO, POINTS
(1)	(2)	(3)	(4)	(5)	(6)
				c) Off taste, bad flavour, strong offensive smell	0
iv)	†Absence of defects	Free from defects, no extraneous mate- rial present; free from blemished disintegrated units; covering sauce practically homo- geneous, practical- ly free flowing, practically free from seeds	35	a) Blemished units up to 5 percent and disintegrated units up to 5 per- cent, calculated on drained mass; covering sauce reasonably homo- geneous, reason- ably free flowing, reasonably free from seeds	26
				b) Blemished units up to 10 percent and disintegrated units up to 10 per- cent, calculated on drained mass; covering sauce somewhat thick; seeds present	23
				c) Blemished and disintegrated units, each above 10 percent; sauce thick; seeds pre- sent	0

\*While rating for 'Texture and Uniformity of Size' texture may be allotted 25 points and uniformity of size, 10 points.

†While rating for 'Absence of Defects' a tentative maximum score of 10 points for absence of blemished units, 15 points for absence of disintegrated units and 10 points for homogeneous sauce may be considered.



**SCORE SHEET FOR INDIVIDUAL JUDGE**

Sample No. ....

Date of Sampling.....

## Details of Sample Cans:

- a) Product ..... b) Name of manufacturer.....  
 c) Style ..... d) Batch No. ....  
 e) Date of manufacture. ....

FACTOR	SCORE POINTS	SAMPLE CAN SCORE									
		CAN No.									
		1	2	3	4	5	6	7	8	9	10
Colour	Grade 1 : 12 to 15 Grade 2 : 10 to 11										
Texture and uniformity of size	Grade 1 : 26 to 35 Grade 2 : 22 to 25										
Taste and flavour	Grade 1 : 12 to 15 Grade 2 : 10 to 11										
Absence of defects	Grade 1 : 26 to 35 Grade 2 : 23 to 25										

Signature of the Judge  
 with Date .....

As in the Original Standard, this Page is Intentionally Left Blank

## SCORE CARD

Sample No. ....

Date of Sampling.....

### Details of Sample Cans:

a) Product, .....

b) Name of manufacturer. ....

c) Style.....

d) Batch No. ....

e) Date of manufacture. ....

[illegible]

As in the Original Standard, this Page is Intentionally Left Blank

## APPENDIX B

[ Table 1, Item (i) ]

### DETERMINATION OF DRAINED MASS

#### B-1. APPARATUS

**B-1.1 1·70-mm IS Sieve** ( *see IS : 460-1962\** ) — Alternatively, BS Sieve 10 or ASTM Sieve 12 or Tyler Sieve 10 may be used. Sieve of size  $203 \times 203$  mm shall be used for A-2 $\frac{1}{2}$  or smaller cans.

#### B-2. PROCEDURE

**B-2.1** Carefully weigh the clean and dry sieve and empty the contents of the can into the sieve in such a manner as to distribute the product evenly with length along the slope. Without disturbing the product, incline the sieve so as to facilitate drainage. Allow to drain for two minutes. Wash the okra with a jet of cold water with the help of a wash bottle. Allow the water to drain again for 2 minutes. Weigh the sieve along with the product. The drained mass shall be the mass of the product and the sieve less the mass of the sieve.

## APPENDIX C

[ Table 1, Item (ii) ]

### DETERMINATION OF SODIUM CHLORIDE

#### C-1. REAGENTS

**C-1.1 Standard Sodium Hydroxide Solution** — 0·1 N.

**C-1.2 Standard Silver Nitrate Solution** — 0·1 N.

**C-1.3 Phenolphthalein Indicator Solution** — prepared by dissolving 0·1 g of phenolphthalein in 100 ml of 60 percent rectified spirit.

**C-1.4 Potassium Chromate Indicator Solution** — approximately 5 percent ( *m/v* ).

---

\*Specification for test sieves ( *revised* ).

## C-2. PROCEDURE

**C-2.1** Transfer 20 g of the sauce to a 200-ml flask; neutralise it with standard sodium hydroxide solution using phenolphthalein as indicator. Make to the mark with distilled water, mix by shaking, filter and titrate an aliquot portion with standard silver nitrate solution using potassium chromate solution as indicator.

### C-2.2 Calculation

$$\text{Sodium chloride, percent by mass} = \frac{5.8 (VN)}{M}$$

where

$V$  = volume in ml of standard silver nitrate solution used in titration,

$N$  = normality of standard silver nitrate solution, and

$M$  = mass in g of the material present in the aliquot taken for titration.

( Continued from page 2 )

## Processed Fruits and Vegetables Subcommittee, AFDC 23: 3

*Convener*

SHRI DAYA NAND

*Representing*Central Fruit Products Advisory Committee  
( Ministry of Agriculture & Irrigation ), New  
Delhi*Members*

AGRICULTURAL MARKETING ADVISER TO THE GOVERNMENT OF INDIA	Directorate of Marketing & Inspection ( Ministry of Agriculture & Irrigation ), Faridabad
DIRECTOR OF LABORATORIES ( <i>Alternate</i> )	
DR J. C. ANAND	Fruit Processing Division, Indian Agricultural Research Institute ( ICAR ), New Delhi
SHRI N. P. BHARGAVA	The Midland Fruit & Vegetable Products ( India ) Pvt Ltd, New Delhi
CHAIRMAN	Technical Standardization Committee ( Food- stuffs ) ( Ministry of Agriculture & Irriga- tion ), New Delhi
SECRETARY ( <i>Alternate</i> )	
SHRI T. B. DESAI	Surti Mango Pickles, Untdi
SHRI A. T. DESAI ( <i>Alternate</i> )	
SHRI GIRDHARI LAL	Provision Merchants' Association, Delhi
SHRI K. S. JAYARAMAN	Defence Food Research Laboratory ( Ministry of Defence ), Mysore
SHRI L. A. RAMANATHAN ( <i>Alternate</i> )	
SHRI V. S. MAMADAPUR	Fruit and Vegetable Cooperative Processing Society Ltd, Kushalnagar
SHRI B. C. MATHUR	National Cooperative Development Corporation, New Delhi
DR A. G. NAIK-KURADE	All India Food Preservers' Association, New Delhi
SHRI A. K. TIKOO ( <i>Alternate</i> )	
SHRI A. M. NANJUNDASWAMY	Central Food Technological Research Institute ( CSIR ), Mysore
SHRI M. V. SASTRY ( <i>Alternate</i> )	
SHRI C. V. PAUL	Canning Industries Cochin Ltd, Trichur
SHRI M. K. REHMAN	Punjab State Cooperative Supply and Marketing Federation Limited, Chandigarh
SECRETARY	Central Committee for Food Standards ( Ministry of Health & Family Welfare ), New Delhi
SECRETARY	Development Council for Food Processing Indus- tries ( Directorate General of Technical Development ), New Delhi
SHRI V. L. SHARDA	Tims Products Limited, Calcutta
DR L. L. KHATRI ( <i>Alternate</i> )	
COL R. N. TANEJA	Directorate of Supplies & Transport, Army Headquarters
LT-COL D. D. VOHRA ( <i>Alternate</i> )	

# INDIAN STANDARDS

## ON

### PROCESSED FRUITS AND VEGETABLES

#### IS :

- 2860-1964 Methods of sampling and test for processed fruits and vegetables
- 2867-1964 Canned mangoes
- 2868-1964 Canned pineapples
- 2869-1964 Canned orange segments
- 3245-1965 Canned peas in brine
- 3246-1976 Canned okra *BHINDI* ( *first revision* )
- 3247-1976 Canned bitter gourd ( *KARELA* ) ( *first revision* )
- 3248-1965 Canned tomatoes
- 3500-1966 Mango chutney
- 3501-1966 Pickles
- 3543-1966 Papain
- 3547-1976 Mango nectar ( *first revision* )
- 3880-1966 Canned mango pulp
- 3881-1966 Tomato juice
- 3882-1966 Tomato ketchup
- 3883-1966 Canned tomato puree
- 3884-1966 Canned tomato paste
- 4624-1978 Dehydrated peas ( *first revision* )
- 4625-1968 Dehydrated carrots
- 4626-1978 Dehydrated potatoes ( *first revision* )
- 4627-1968 Dehydrated cabbage
- 4628-1978 Dehydrated okra ( *BHINDI* ) ( *first revision* )
- 4935-1968 Synthetic syrups
- 4936-1968 Fruit squashes
- 4939-1968 Methods of test for products derived from fruits and vegetables
- 5781-1970 Method for determination of total solids in fruit and vegetable products
- 5800-1970 Orange juice
- 5861-1970 Fruit jams, jellies and marmalades
- 7254 ( Part I )-1974 Methods of test for determining preservatives in fruit and vegetable products: Part I Benzoic acid
- 7732-1975 Apple juice
- 8713-1978 Mango juice
- 8786-1978 Okra ( *BHINDI* ) canned in tomato sauce



**AMENDMENT NO. 1 MAY 1996**  
**TO**  
**IS 8786 :1978 SPECIFICATION FOR OKRA ( *BHINDI* )**  
**CANNED IN TOMATO SAUCE**

( *Page 3, Foreword, clause 0.2* ) — Insert the following new clause after 0.2 and renumber the subsequent clause:

**‘0.3** A scheme for labelling environment friendly products known as ECO-Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO-Mark shall be administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 1986 as per Resolution No. 71 dated 20 February 1991 and Resolution No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with the ECO-Mark it shall also carry the Standard Mark of BIS for quality besides meeting additional environment friendly (EF) requirements. The environment friendly requirements for okra ( *BHINDI* ) canned in tomato sauce are, therefore, included through Amendment No. 1 to this standard.

This amendment is based on the Gazette Notification No. 624 (E) dated 6 September 1995 for Labelling Beverages, Infant Foods, Processed Fruits and Vegetable Products as environment friendly, published in the Gazette of the Government of India.’

( *Page 6, clause 5.5.5* ) — Insert the following new matter after 5.5.5:

**“5.6 Additional Requirements for ECO-Mark**

**5.6.1 General Requirements**

**5.6.1.1** The product shall conform to the requirements prescribed under 5.1 to 5.5.5.

**5.6.1.2** The manufacturer shall produce the consent clearance as per the provisions of *Water (PCP) Act*, 1974, *Water (PCP) Cess Act*, 1977 and *Air (PCP) Act*, 1981 along with the authorization if required under *Environment (Protection) Act*, 1986 and the Rules made thereunder to the Bureau of Indian Standards while applying for the ECO-Mark and the product shall also be in accordance with the *Prevention of Food Adulteration Act*, 1954 and the Rules made thereunder. Additionally, FPO 1955 (Fruit Product Order) framed under *Essential Commodities Act*, 1955, *Standards of Weights and Measures Act*, 1977 requirements wherever applicable has to be complied with.

5.6.1.3 The product/package may also display in brief the criteria based on which the product has been labelled environment friendly.

5.6.1.4 The material used for product/packing shall be recyclable or biodegradable.

5.6.1.5 The date of manufacture and date of expiry shall be declared on the product/package by the manufacturer.

5.6.1.6 The product shall be microbiologically safe when tested as per IS 5403 : 1969 'Method for yeast and mould count of foodstuffs' and IS 5887 ( Part 5 ) : 1976 'Methods for detection of bacteria responsible for food poisoning : Part 5 Isolation, identification and enumeration of *Vibrio Cholerae* and *Vibrio Parahaemolyticus* ( first revision )' and shall be free from bacterial and fungal toxins.

5.6.1.7 The pesticide residues, if any in the product shall not exceed the limit as prescribed in PFA Act, 1954 and the Rules made thereunder.

5.6.1.8 The product/package or leaflet accompanying it may display instructions of proper use, storage and transport ( including refrigeration temperature compliance ) so as to maximize the product performance, safety and minimize wastage.

## 5.6.2 Specific Requirements

5.6.2.1 The product shall not contain any of the heavy metal contaminants in excess of the quantities prescribed in Table 2."

( Page 9, clause 6.2.3 ) — Insert the following new clause after 6.2.3:

### '6.2.4 ECO-Mark

The product may also be marked with the ECO-Mark, the details of which may be obtained from the Bureau of Indian Standards.'

( FAD 10 )